Proposed Final Range of Alternatives

Advisory Committee
December 8, 2005

Purpose of this Session

- **Describe Range of Configurations and with Broad Screening Criteria**
  - Legislative and regulatory requirements
  - CEQA Guidelines
- **Identify Proposed Final Range of Alternatives**
  - Basic Configurations
  - Additional details or sub-alternatives to be considered

Broad Screening Criteria from Initial Screening Process

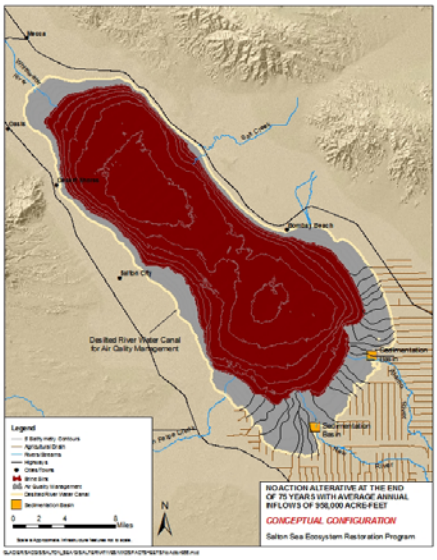
CEQA Guidelines for Range of Alternatives

- **Must permit a reasoned choice**
- **Includes alternatives that would lessen or avoid significant effects**
- **Must <u>feasibly</u> attain <u>most</u> of the basic objectives**
  - Site suitability
  - Economic viability
  - General plan consistency
  - Regulatory limitations
  - Jurisdictional boundaries
  - Ability to legally acquire, control, or have access to site

Project Objectives per Legislation and Statutory Mandates

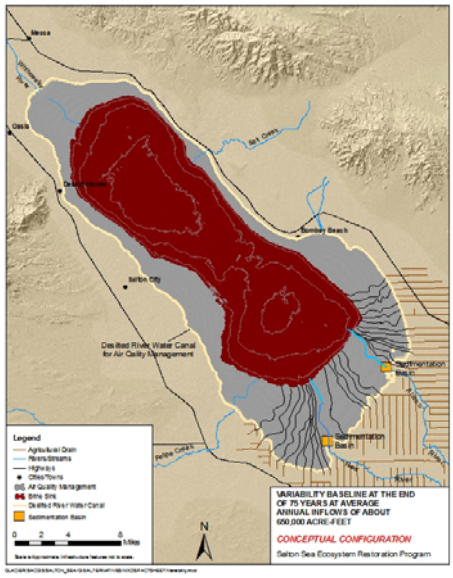
- **Restore long-term stable aquatic and shoreline habitat for historic levels and diversity of fish and wildlife that depend upon Salton Sea**
- **Restoration of the Salton Sea ecosystem and permanent protection of wildlife dependent on that ecosystem**
- **Protect federal and state listed species**
- **Protect water quality to support beneficial uses**
- **Eliminate air quality impacts due to restoration**
- **Continued use of Salton Sea as a permanent drainage reservoir**
- **Assess protection of recreational opportunities and creation of opportunities for improved local economic conditions**

Configurations also Must be Compared to No Action Alternative



No Action Alternative

- **Average annual inflow of 958,000 acre-feet/year**
- **Air Quality Management at elevations below -235 feet msl**
- **Pupfish connectivity when Sea salinity is greater than 90,000 mg/L**



Variability Baseline

- **Average annual inflow of 650,000 acre-feet/year (current estimate)**
- **Air Quality Management at elevations below -235 feet msl**
- **Pupfish connectivity when Sea salinity is greater than 90,000 mg/L**

Compare Conditions without Restoration

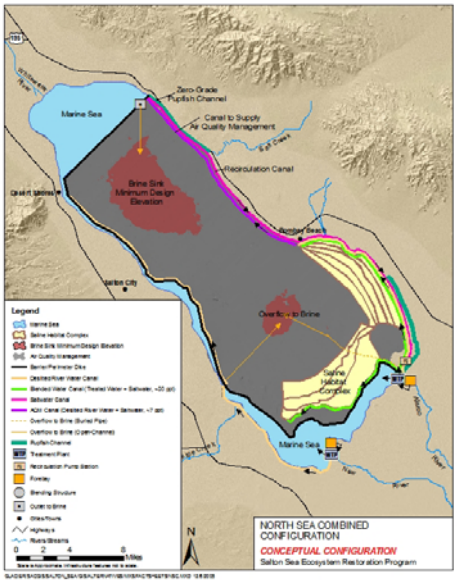
- **No Action Alternative**
  - **170,000 acres brine sink**
    63,000 acres exposed playa
- **Variability Baseline**
  - **124,000 acres brine sink**
    108,000 acres exposed playa

Compare Conditions without Restoration - Preliminary Estimate of Costs

- **No Action Alternative**
  - **$1,100 million Capital**
    $ 22 million/yr O&M
- **Variability Baseline**
  - **$1,900 million Capital**
    $ 38 million/yr O&M

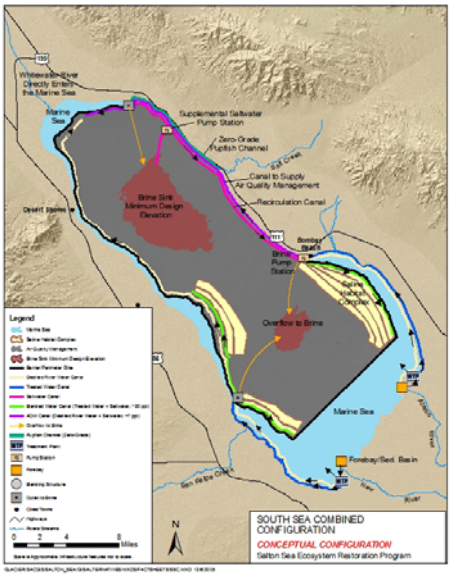
Partial Sea Configurations

- **North Sea Combined with Saline Habitat Complex**
- **South Sea Combined with Saline Habitat Complex**
- **Maximize Saline Habitat Complex and North Sea**
- **Concentric Rings**



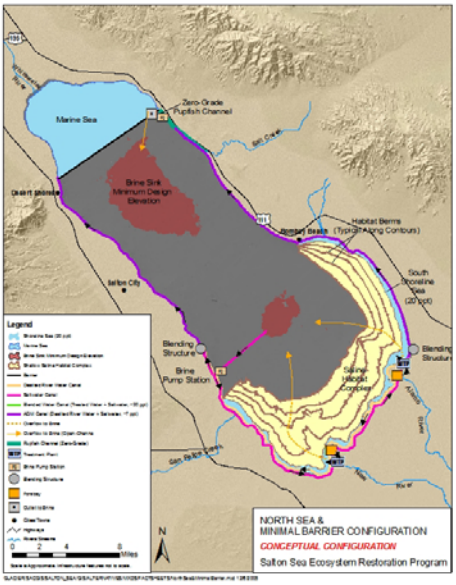
North Sea Combined with Saline Habitat Complex

- **Barrier at 14 miles north of mid-sea**
- **25,000 acres saline habitat complex**
- **Recirculation to maintain water quality**
- **Water treatment for flows to habitat**
- **Pupfish connectivity**



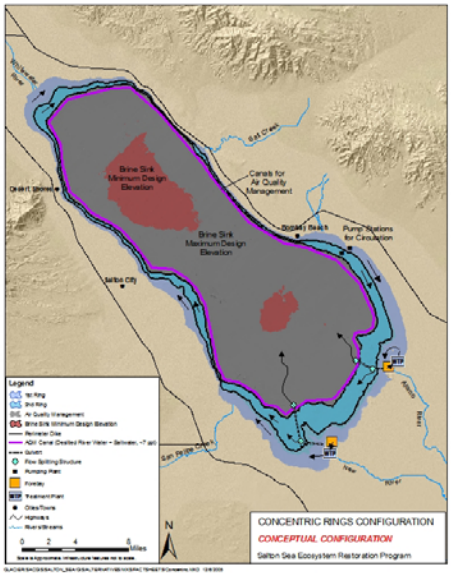
South Sea Combined with Saline Habitat Complex

- **Barrier at 10 miles south of mid-sea**
- **25,000 acres saline habitat complex**
- **Recirculation to maintain water quality**
- **Water treatment for flows to habitat**
- **Pupfish connectivity**



Maximize Saline Habitat with North Sea

- **Barrier at 13 miles north of mid-Sea**
- **Small sea in south**
- **50,000 acres saline habitat complex**
- **Recirculation to maintain water quality**
- **Water treatment for flows to habitat**
- **Pupfish connectivity**



Concentric Rings

- **Two rings**
  - Outer ring: 20,000 mg/L
  - Inner ring: 35,000 mg/L
- **Habitat within rings**
- **Recirculation to maintain water quality**
- **Water treatment for flows to habitat**
- **Pupfish connectivity**

Compare Partial Sea Concepts - Marine Sea Habitat

North Sea Combined with Saline Habitat Complex	**40,000 acres marine sea 18,000 net acres saline habitat complex**
South Sea Combined with Saline Habitat Complex	**40,000 acres marine sea 18,000 net acres saline habitat complex**
Maximize Saline Habitat Complex and North Sea	**27,000 acres marine sea 38,000 net acres saline habitat complex**
Concentric Rings	**30,000 acres marine sea 36,000 acres inner marine sea**

Compare Partial Sea Concepts - Quantities of Material for Barriers, Perimeter Dikes, and Berms

North Sea Combined with Saline Habitat Complex	**100.5 million cubic yards**
South Sea Combined with Saline Habitat Complex	**77.3 million cubic yards**
Maximize Saline Habitat Complex and North Sea	**82.3 million cubic yards**
Concentric Rings	**60.8 million cubic yards**

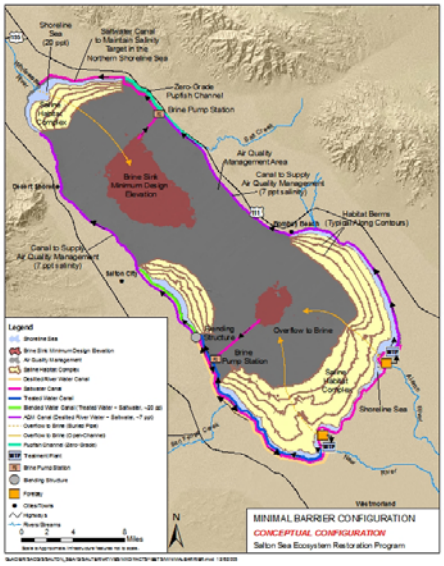
Compare Partial Sea Concepts - Preliminary Estimate of Costs

North Sea Combined with Saline Habitat Complex	**$10,000 million Capital $ 150 million/yr O&M**
South Sea Combined with Saline Habitat Complex	**$ 9,200 million Capital $ 150 million/yr O&M**
Maximize Saline Habitat Complex and North Sea	**$ 9,800 million Capital $ 150 million/yr O&M**
Concentric Rings	**$ 7,900 million Capital $ 140 million/yr O&M**

Partial Sea Configurations Compared to Broad Screening Criteria

- **Appears that all four configurations meet Broad Screening Criteria**
- ***Proposal: Continue to define the four Partial Sea configurations to develop four Final Alternatives***
- ***Proposal: Consider sub-alternatives for different habitats??***
- ***Proposal: Continue to use conservative assumptions - but acknowledge in PEIR that adaptive management would be integrated***

Minimal Barrier Configuration



Minimal Barrier

- **Up to 75,000 acres saline habitat complex - dependent upon areas with shallow slopes**
- **Shoreline sea to circulate water and provide pupfish connectivity**
- **Water treatment for flows to habitat**
- **No deep marine Sea**

Minimal Barrier

- **Marine Sea Habitat:** None
- **Saline Habitat Complex:** up to 75,000 acres
- **Quantities of Earth Material Moved:** 30 million cubic yards
- **Preliminary estimates of capital cost:** $7,300 million
- **Preliminary estimates of annual operations and maintenance cost:** $160 million/yr

Minimal Barrier Configuration Compared to Broad Screening Criteria

- **Appears that configuration meets Broad Screening Criteria**
- ***Proposal: Continue to define the Maximize Saline Habitat Complex configuration to develop a Final Alternative***
- ***Proposal: Consider sub-alternatives for different habitats??***
- ***Proposal: Continue to use conservative assumptions - but acknowledge in PEIR that adaptive management would be integrated***

Whole Sea Configurations

- **Import/Export to Gulf of California**
- **Import/Export to Pacific Ocean**

Import/Export Configuration Features

Based on USBR studies and other studies

- **Route to Gulf beyond Biosphere**
- **Route to Pacific Ocean uses tunnels**
- **Outfalls and intakes need to be separated**
- **Habitat provided for Whole Sea**
- **Water treatment for inflows and exports**
- **Energy generated along routes**

Compare Whole Sea Concepts - Length of Routes

- **Import/Export to Gulf of California** — **150 miles each way**
- **Import/Export to Pacific Ocean** — **100 miles each way**

Compare Whole Sea Concepts - Preliminary Estimate of Costs

- **Import/Export to Gulf of California**
- **Import/Export to Pacific Ocean**
- **$49,000 million Capital**
  $ 690 million/yr O&M
- **Costs not developed at this time**

Whole Sea Configurations Compared to Broad Screening Criteria

- **Meet legislative and regulatory objectives**
- **Import/Export to Gulf of California does not meet CEQA Guidelines**
  - Is not located in jurisdictional boundaries of California
  - No ability for California to legally acquire, control, or have access to site
  - May be considered with future projects such as transportation canal from Mexico
- **Import/Export to Pacific Ocean does not meet CEQA Guidelines**
  - Would not have less substantial impacts than other configurations and may not be economically viable

Whole Sea Configurations Compared to Broad Screening Criteria

- ***Proposal: To eliminate Whole Sea Configurations from Final Range of Alternatives, acknowledge that if other projects such as extension of a transportation canal from the Gulf of California to the Salton Sea was constructed, a Whole Sea Configuration should be re-evaluated***

Proposed Final Range of Alternatives

- **No Action Alternative and Variability Baseline**
- **North Sea Combined with Saline Habitat Complex**
- **South Sea Combined with Saline Habitat Complex**
- **Maximize Saline Habitat Complex and North Sea**
- **Concentric Rings**
- **Minimal Barrier**
- ***Proposal: Continue to develop with Working Groups to define details of alternatives and sub-alternatives***